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<p>(21) International Application Number: PCT/IT97/00236</p> <p>(22) International Filing Date: 1 October 1997 (01.10.97)</p> <p>(30) Priority Data: PC96A000026 1 October 1996 (01.10.96) IT</p> <p>(71) Applicant (<i>for all designated States except US</i>): COLUMBUS S.A.S. DI SILVIO ZONI [IT/IT]; Via Faggi, 2, I-29100 Piacenza (IT).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (<i>for US only</i>): ZONI, Silvio [IT/IT]; Via Faggi, 2, I-29100 Piacenza (IT). ZONI, Barbara [IT/IT]; Via Faggi, 2, I-29100 Piacenza (IT).</p> <p>(74) Agent: FARNESE, Giuseppe; Via Garibaldi, 83, I-29100 Piacenza (IT).</p>		<p>(81) Designated States: AU, CA, JP, US, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	
<p>(54) Title: METHOD FOR INCREASING THE PRINTING SURFACE OF MONO AND/OR MULTILAYERED LABELS</p> <p>(57) Abstract</p> <p>The invention concerns a method for increasing the printing surface of labels, in particular labels for food and pharmaceutical industry. The same method concerns the multilayered structure of labels with extended printing surface and using subsequent mirror-like and direct printing, for forming booklets easily strippable and whose single sheets are positionable in the original place after stripping.</p>			
<p>The diagram illustrates a circular label with a textured outer edge. The label is divided into several sections: a central area labeled '7', a middle ring labeled '9', and an outer ring labeled '10'. On the right side, there is a triangular cutout or tear-off section labeled '12' at its base and '13' along its edge. Below this, a vertical strip labeled '14' extends downwards. At the bottom center, there is a small circular feature labeled '11'.</p>			

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METHOD FOR INCREASING THE PRINTING SURFACE OF MONO
AND/OR MULTILAYERED LABELS.

5 Scope of the invention

The present invention concerns with a method for increasing the printable surface of labels, mainly of the types used in the pharmaceutical and food industry.

10 Scope of the present invention is to increase of at least twice the printable surface of said labels, by means of direct and mirror-like printing technology; further scope of the present invention is to build a multilayered label, each of the layer of the said 15 multilayered structure is placed one upon another by means of silicone adhesive but, also, removable and replaceable, with the result of forming a compact booklet with many foils of labels whereby each ones readable from both faces.

20 Prior art

In some sectors of industry, in particular in the pharmaceutical and food sectors, there is the need to stick on the final products going into commerce labels which support the maximum contents of information. This

is required either for the correct use of the said products, either to obviate the loss of the small sheets of paper which generally accompany them in the packing; this need contrasts, however, with the small dimensions of the container on which said labels are stuck.

Furthermore, the increase of the density of information printable on the labels encounters limitations in the excessive reduction of the dimensions of the types, since such information must be easily readable.

In case of labels applicable on containers for food or drugs it is, additionally, mandatory to report thereon two categories of data : the so called fixed data and the variable data, whereas the fixed data concern the composition of the product and its use and are generally printed by the typographies supplying said labels to the pharmaceutical or food industries, while the variable data concern information identifying the number of the packing and the expiration date and are generally printed by the producers of drugs or food during the packaging phase.

Another necessity of the industry producing large scale products is to supply different countries : in

order to obviate to the differentiation of labels to stick on the product according to the language of the destination country, the sticking of a single label capable of supporting the required information in different languages would solve the problem and would reduce the production costs.

An other problem linked to the use of labels for drugs consists in that the labels must provide a detachable coupon which, when removed from the rest of the label has to be applied on the case-history or health service card of the patients, as described in EP 0610540 (Schreiner) and EP 0463193 (Schreiner).

The above cited documents disclose labels which being longer than the diameter of the container around which they are stuck, they result in a superposition of their ends ; consequently, of these two zones only the superposed one is printable : it is, therefore desirable to rescue for printing the underposed zone.

In fact the zones underposed to detachable parts of the labels are treated with silicone or lapped and then these operations make them useless for the printing, so resulting in a loss of useful surface.

This is of a particular disadvantage when considering that the detachable part of the label

contains information (variable data) which must be printed as a permanent copy on another zone of the remaining part of label.

WO 93/18928 (Minnesota Mining and Manufacturing Co.) and WO 96/13823 (Moore Business Forms Inc.) disclose the superposition of layers of labels alternated with separation layers which allow the detachment of each single label preserving, at the same time, the information on the superior face of the inferior label.

The prior art limits the printing of the information for the use of the products just to the superior face of each sheet of label.

Description of the invention

The object of the present finding is to overcome the above reported drawbacks, allowing, by a suitable method, hereinafter described, to obtain at least the doubling of the printing surface of labels in respect to labels of the prior art.

It is further object of the present invention to make printable the part of the label which is superposed when stuck around a container.

Additionally, the present invention has the aim to allow the construction of a structure consisting of

superposition of one or more sheets of label, obtained with the method hereinafter described, each of them detachable and replaceable, having the characteristics of bearing printed information on both faces of each single sheet, the first face printed with direct printing, the second one printed with mirror-like printing, said superposed structure acting as a booklet of easy consultation.

In such a way, the density of information printable on each single label is at least double in respect of the corresponding labels of the prior art.

The invention will be better explained by means of figures.

Figures 1 and 2 illustrate a label of the prior art.

Figure 3 illustrates the arrangement of the printable zones of the label of the present invention.

Figures 4 and 5 display the embodiments of the multilayered structure of the present invention.

In Figures 1 and 2 it is displayed a prior art label, whose length is superior to the diameter of the container on which is stuck and, therefore, the zone 2 is superimposed with the zone 3.

The zone 2 may be lifted up and detached from the

remaining portion of label by means of the piercing 6.
In order to make it possible, the zone 3 is treated
with silicone or lapped at the interface between the
zone 3 and the zone 2. The part 5 of the zone 3 is
5 glued to the container by means of the adhesive 4.

The zone 3, due to the above mentioned treatments
necessary to make the coupon 2 detachable becomes
useless for printing.

As above said, the variable data printed on the
10 detachable coupon 2 must be reproduced on an other part
of label 1, which remain stuck to the container : it
results in a further limitation of the surface which
can be used for information about the product.

Figure 3 illustrates an embodiment of the label of
15 the present invention. It provides that the zone of
variable data 13, detachable from the remaining part of
the label by means of the piercing 14 be, when wound
around the container, superposable to the zone 10 on
which the same variable data are copied. Such an
20 arrangement allows the increase of the printing surface
20 of a quantity equal to the surface 8 of Figure 2.
When the detachable coupon 13 is removed, the zone 10
becomes visible to the user of the product by means of
the lifting up and the unwinding of the film 10.

Said unwinding of said film 10 is made possible by means of the addition of a substrate of plastic film 9 along the entire length of the film 10, said plastic film 9 is separated from film 10 by a layer of adhesive 5 covered with silicone 11, which allows the lifting up, the unwinding and the subsequent set in place.

Figure 4 illustrate the working of the label when glued on the container, in example a small bottle, by means of the adhesive 7.

10 The detachable coupon 13, when removed by means of piercing 14, shows through the transparent film 9 the part 12 printed with the same information data. The zone 12 is protected by a piece of film 9 with which is glued by means of the adhesive 7 : said zone 12 forms 15 in such a way an anchoring for the film 10, which can be lifted up till the limit of the said zone 12, said anchoring impedes the total removal and allows the precise subsequent set in place, as illustrated by Figure 5.

20 In Figure 5 it is, also, shown that the label of the present invention makes visible the protected zone of the variable data when it is not exactly underposed to the detachable coupon 13, by means of the lifting up of the film 10 and its subsequent set in place.

By means of subsequent layers of adhesive covered by silicone, it is possible, relying on the adherent anchoring of the zone 12 of Figures 4 and 5, to add further printed sheets, as those referenced with 15 and 5 16 in Figure 6.

Such an embodiment makes possible the packaging of products for multilingual markets, since each film can be dedicated to each language during the same production phase.

10 Figure 7 shows the method for obtaining for each sheet the doubling of the printing surface.

Film 19 is placed on substrate 9 to which it adheres in a removable way by means of a layer of adhesive with silicone 11.

15 The adhesive 7 is used to glue the label to the container and to form the anchoring zone of the set of sheets, as already seen in Figure 5.

On each film it is effected a first operation 21 of mirror-like printing. On such a printed portion it 20 is subsequently effected a covering operation with opaque material 22. On said opaque material 22 is then effected a second operation of direct printing 23.

The first mirror-like printed area is visible when the label is lifted up and the reading direction is S,

while the second direct printed area is readable in the direction D.

The subsequent sheets, each one printed in direct and mirror-like manner, are arranged on each other by means of a layer 24 of adhesive silicone on which is sprayed an adhesive 25 of the transfer type: with such a method a multilayered compact label is formed, having the double of information content, easily liftable up, strippable and positionable back to place.

10 The invention hereabove described by means of preferred embodiments is not, obviously, limited for forms of labels or of the containers on which they are stickable.

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CLAIMS

1. Method for increasing the printing surface of mono and/or multilayered labels of the type used for pharmaceutical and/or food products and having a length superior to the perimeter of the containers on which they are stickeable, said labels made of a plastic film on which a layer of adhesive covered with silicone is deposited, said silicone layer is adherent to a printable sheet, said printable sheet is lifteable up and replaceable on said substrate and anchored by means of the adhesive of said substrate to the said containers in order to impede the total removal therefrom wherein on said printable sheet is effected a first mirror-like printing operation on which an opaque material is deposited, on said opaque material is subsequently effected a second direct printing operation.

2. A method according to claim 1, wherein subsequent alternate operations of mirror-like and direct printing are effected on subsequent sheets placed one over the other by means of a layer of silicone and a subsequent layer of adhesive of the transfer type in the interface between two of said

sheets, said subsequent sheets forming a booklet strippable and readable by both faces of each of said sheets, each of said sheet is positionable back to the original position.

5 3. A label obtained by the method of preceding claims, wherein the variable data printed on a detachable coupon are reprinted on a zone of the remaining part of said label, said variable data being readable by lifting up the sheet printed by mirror-like
10 and direct printing.

15

20

11

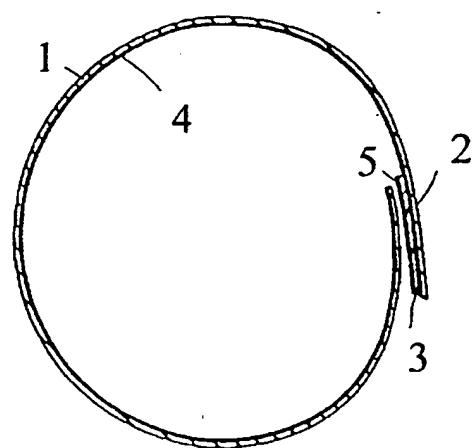


FIG. 1

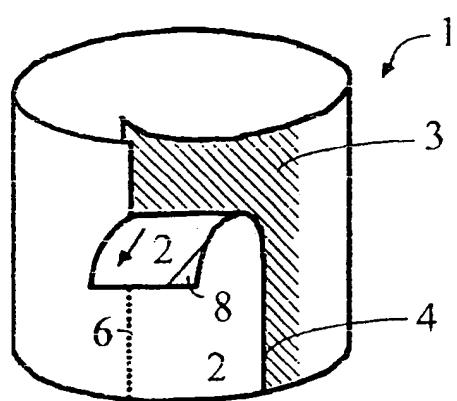


FIG. 2

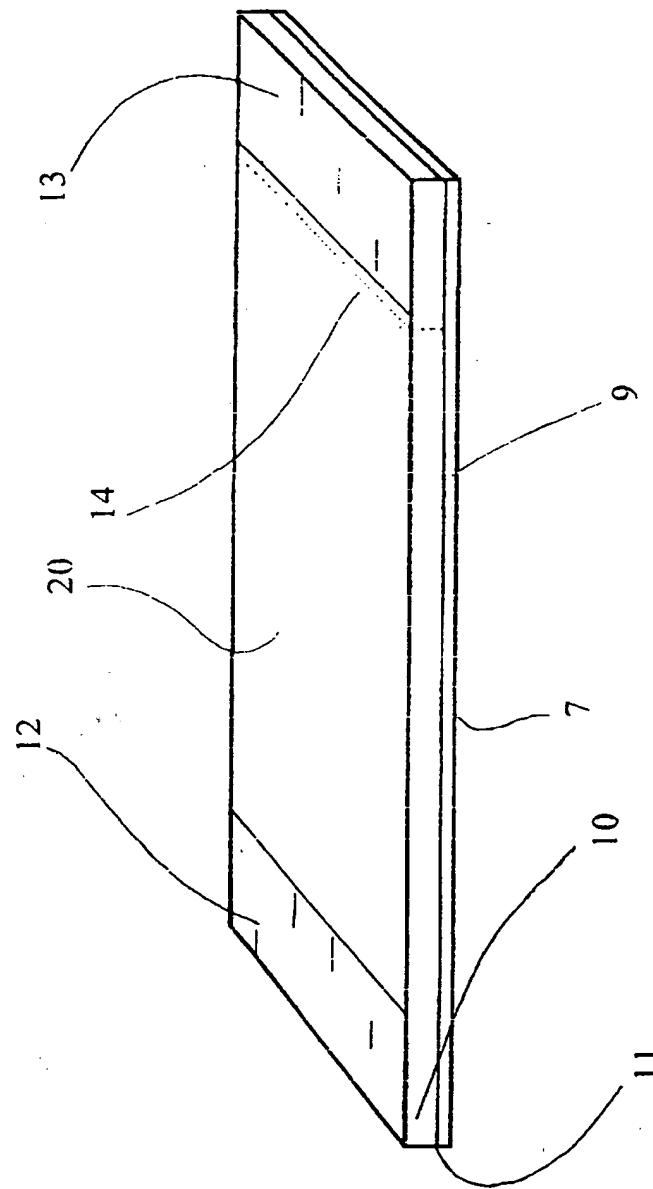


FIG. 3

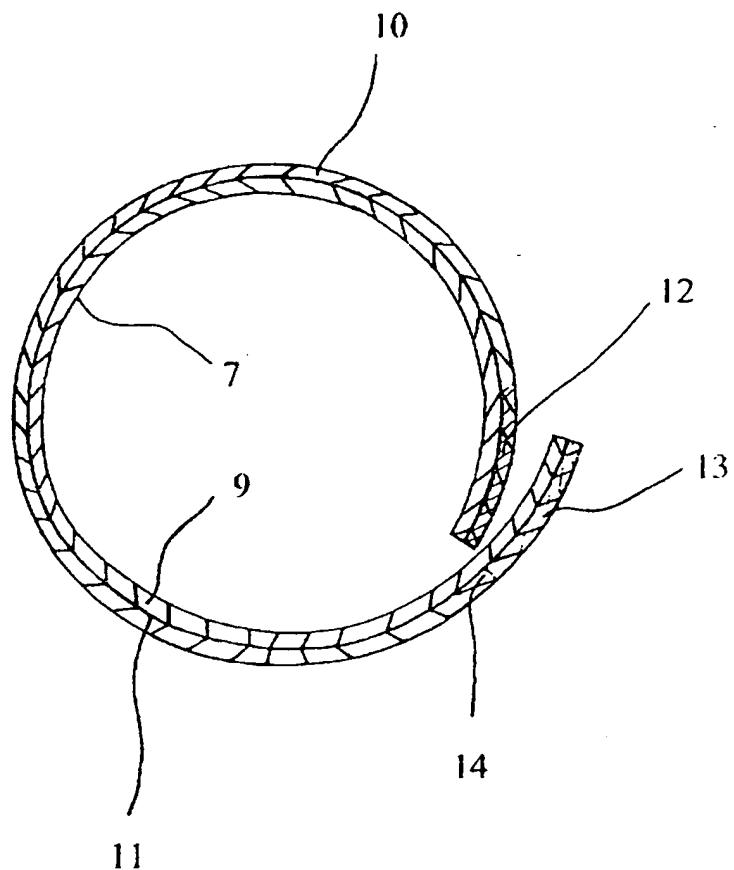


FIG. 4

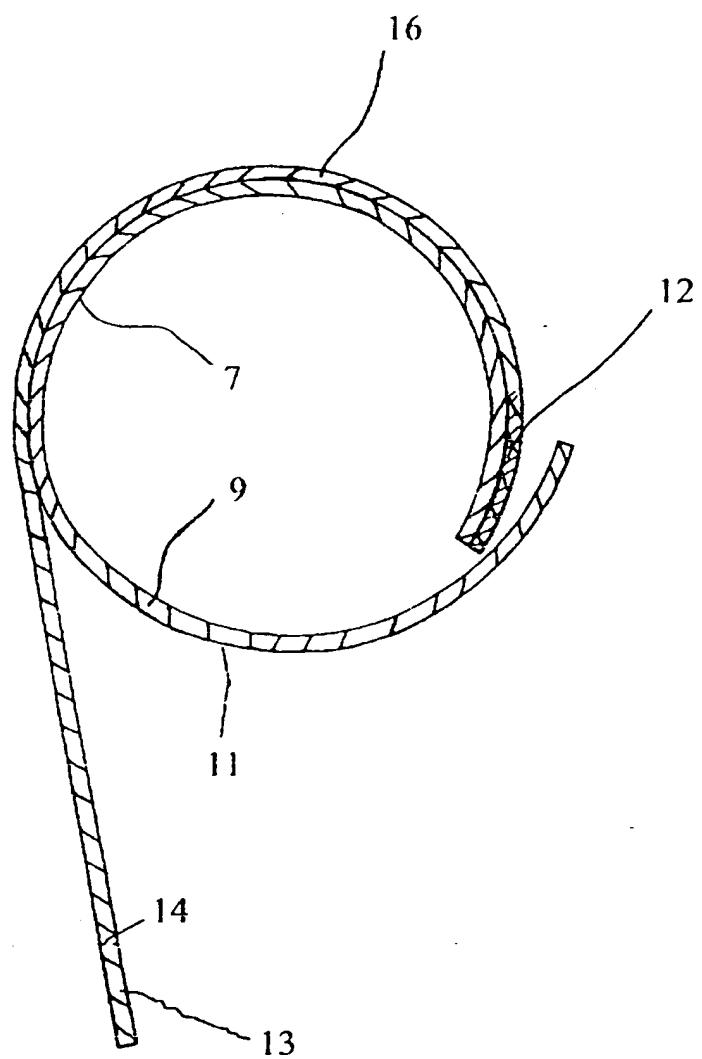


FIG. 5

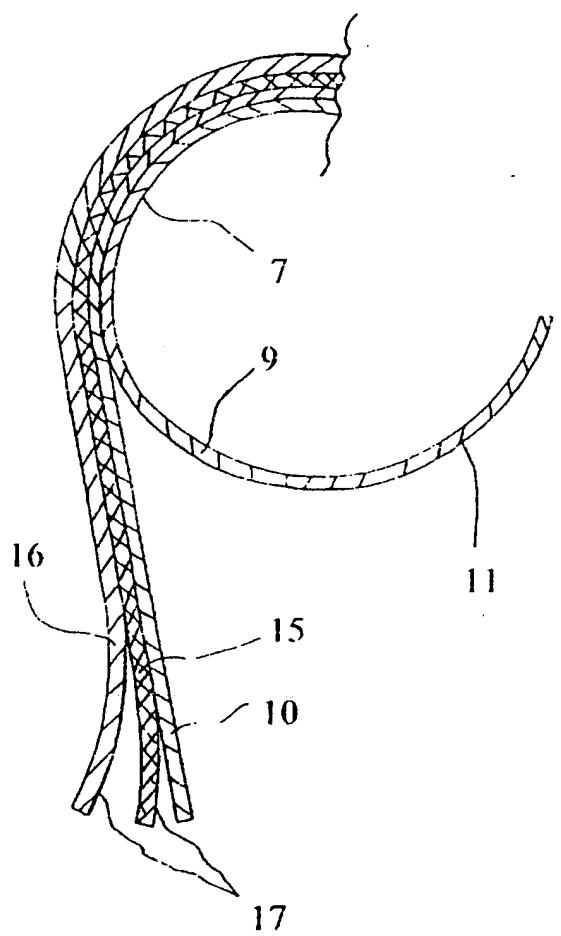


FIG. 6

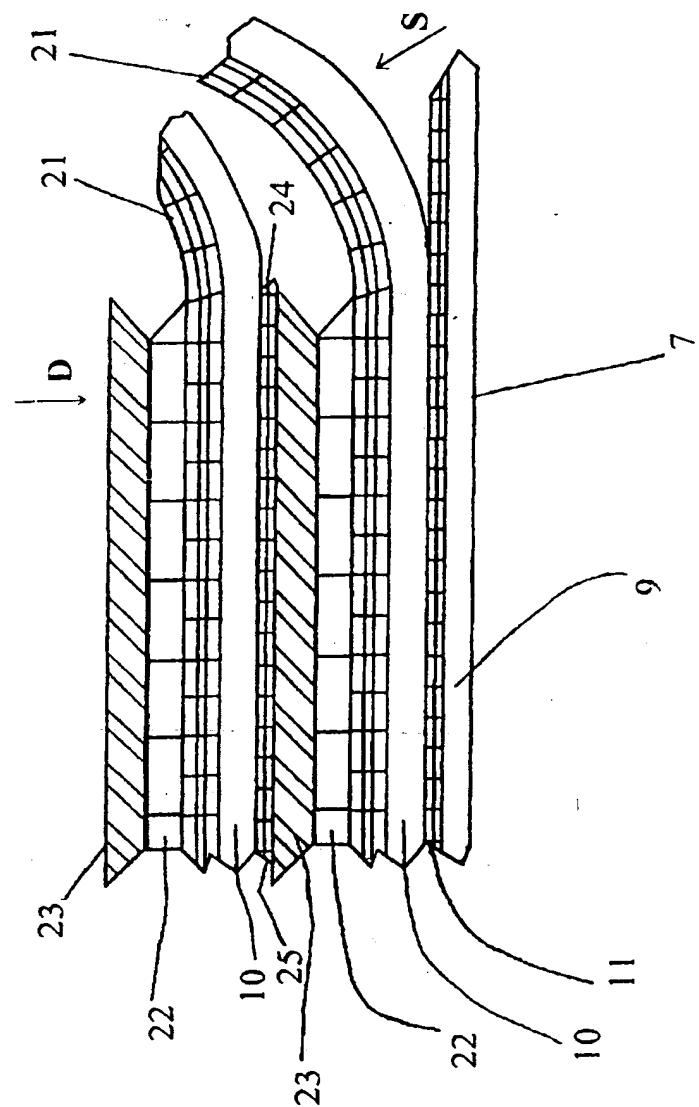


FIG. 7

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 97/00236

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 6 G09F3/10 G09F3/02 B31D1/02

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G09F B31D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	GB 2 238 772 A (CREATIVE EUROPE) 12 June 1991 see the whole document	1-3
Y	US 5 264 265 A (T. KAUFMANN) 23 November 1993 see the whole document	1-3
Y	GB 2 277 075 A (LANDSDOWNE STUDIO) 19 October 1994 see the whole document	1-3
A	US 4 324 058 A (S. SHERWICK ET AL.) 13 April 1982 see the whole document	1-3
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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3

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 463 193 A (SCHREINER ETIKETTEN UND SELBSTKLEBETECHNIK) 2 January 1992 cited in the application see the whole document ---	1-3
A	DE 93 11 970 U (UWE MÜLLER) 16 December 1993 see the whole document ---	1-3
A	EP 0 610 005 A (MOORE BUSINESS FORMS) 10 August 1994 ---	
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PCT/IT 97/00236

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